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NEW SEEDERS FOR GRASS-CROP ROTATION

In the field of grass-crop rotation there has long been a need for a type of seeder which would simultaneously sow perennial grasses and cover plants, by means of separate sowing apparatus, in individual rows. The great diversity in the seeds of perennial grasses with respect to size, the ease with which they pour out of the machine, and their planting depth made the design of a universal machine, until very recently, a very difficult task. However, this problem has been solved by the design of two grain-and-grass seeders, the tractor-drawn SZT-47 for seeds with good flow capacity and the horse-drawn SZT-19 for those that lack such flow.

These machines make it possible to sow under cover flowing seeds, such as clover, timothy, and alfalfa--which fully meets the needs of northern and, partly, the southern areas of the Soviet Union--and at the same time permits simultaneous sowing of flowing and nonflowing leguminous and gramineous crops. The seeders have been in production since 1949. Their use has reduced labor and fuel consumption and considerably increased the crop yields.

Since the machine-building industry cannot put out enough machines to satisfy the immediate needs of agriculture, designers were also charged with adapting existing models for the sowing of grasses. The SD-24 and SD-10 horse-drawn and tractor-drawn seeders were recently standardized. Moreover, two flax seeders have been put out, the horse-drawn SL-17, and tractor-drawn SL-44. The SL-44 has been equipped with attachments for sowing grasses whose seeds flow freely.

The horse-drawn SZT-19 seeder is based on the SD-10 model, but is simpler in design and its seedbox for grain crops is placed in front of the box for grain seeds; grass seeds are sown into the front row of colters and grain seeds into the back row. However, during experiments it was found desirable to reverse the position of the seed boxes. As a result, two modified versions were subsequently put out: the SZT-19A, with European colters, and the SZT-19D with disk colters. Both models permit flowing seed to be sowed under cover and both flowing and nonflowing seed to be sowed without cover. The SZT-19 was successfully tested last autumn and recommended for production.

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The SZT-19D represents a modified version of the disk-type SD-10 grain seeder, with attachments to flowing and nonflowing grass seeds. These consist of a suspended box for flowing grass seeds, nine European-type colters with seed ducts, two shafts with tossing scoops, and a transmission gear between the shaft, scoops, and seed box. This seeder has been coordinated with the SZT-19A, except for the colters. The SZT-19A is designed for work in regions where the soil is light while the SZT-19D is intended for regions with heavy soil, requiring planting at a 4-5 centimeters greater depth. The SZT-19D has also been recommended for production.

Another type of seeder, the SZTK-19, is designed for simultaneous sowing of three different crops through separate groups of colters. Here, the grain seed is released from the grain box by means of spool-like sowing apparatus and passes through spiral seed ducts to anchored colters. The nonflowing seed of such grasses as rye, brome, and foxtail is released from the seed box by means of a crank apparatus, through spiral seed ducts, to European-type colters. The flowing grass seed (clover, timothy, alfalfa) passes from the seed box to a hopper, thence through a seed duct to a European-type colter. The SZTK-19 was tried out last autumn and found satisfactory.

A tractor-drawn grain-and-grass seeder, the SZTK-47, has also been designed to sow flowing grass seeds under cover of grain seeds, nonflowing gramineous seeds under cover of grain, simultaneous sowing of flowing and nonflowing grass seeds under cover of grain seeds, and the sowing of grass crops in wide rows for seeding.

The seed box of the SZTK-47 has two compartments--one for grain crops and the other for nonflowing grass seeds. During the sowing of grasses under the cover, the grain crops are fixed in the soil by disk colters under the pressure of springs, and the grasses--both flowing and nonflowing--by European colters located behind the disk colters. When grasses are sown without cover, the nonflowing grass seeds may be fixed by the disk colters without spring pressure, and the flowing seeds by means of the European colters.

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